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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/734,504	12/12/2003	Charles Augustus Choate IV	BUR920020015US2	1005

7590
IP Law Department, 972E
IBM Corporation
1000 River Street
Essex Junction, VT 05452

01/10/2008

EXAMINER

BUEKER, RICHARD R

ART UNIT	PAPER NUMBER
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1792

MAIL DATE	DELIVERY MODE
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01/10/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/734,504

Applicant(s)

CHOATE ET AL.

Examiner

Richard Bueker

Art Unit

1792

– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9-12, 16 and 33-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9-12, 16 and 33-42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

Claims 9-12, 16 and 33-42 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In claim 9, the newly added limitation of "the impurity cell is not coupled to a heat source" was not described in the specification as originally filed and is new matter. It is noted that in applicants' specification as originally filed, the impurity cell is described as being inside the deposition chamber, and the deposition chamber is described as being heated to a high temperature, such as 400° C or higher (see paragraphs 22 and 23 of the specification, for example). Since the impurity cell is in the deposition chamber and the deposition chamber is heated to 400° C or higher, then the impurity cell is coupled to a heat source. Nowhere in applicants' specification is the impurity cell described as "located entirely within the deposition chamber" and "not coupled to a heat source" as recited in claim 9.

Claim 35 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. On further consideration, claim 35 is still considered indefinite because it contains an improperly worded Markush group. The phrase "selected from pentane, hexane, heptane, octane or nonane" should either be changed to "selected from the group consisting of pentane, hexane, heptane, octane or nonane" or simply deleted.

Claims 9-12, 16 and 33-42 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Tom (5,704,965). Tom (see Figs. 3 and 7, for example) discloses an apparatus for incorporating a fluid (gas or liquid – see col. 9, lines 6-21, for example) on a substrate. The apparatus comprises a fluid storage dispensing vessel that is properly described as “a deposition chamber” because it is filled by a deposition process.

Tom describes the fill process of his apparatus at col. 17, line 28 to col. 18, line 6. The fill process is a process of incorporating an impurity (e.g. the germanium in germane) in a thin film on the carbon sorbent substrate contained in the deposition chamber (e.g. cylinder 102 of Fig. 7). The fill process deposits the fill material (e.g. germane) by adsorption at low pressures (see col. 18, lines 7-13, for example), and it is therefore a low pressure deposition process, and the vessel is a low pressure deposition chamber.

Regarding the particular solid materials recited in claim 38, Tom makes clear (see Fig. 1 of Tom, for example) that ceramics such as zeolite were also well known in the prior art as sorbent materials for adsorbing fluids as a thin film on the ceramic sorbent material.

The impurity cell is a porous carbon sorbent material in a form such as beads, tablets, extrudates, cloth, web, honeycomb matrix monolith, etc. (see col. 12, lines 48-57, for example). The porous carbon is a cell as recited in claim 9, or alternatively each pore in the porous carbon is a cell. Tom's apparatus comprises a cell comprising a substantially solid material (the above described carbon sorbent material) located

entirely within a deposition chamber (the gas cylinder described from col. 12, line 58 to col. 13, line 24, and gas cylinder 102 illustrated in Fig. 7, for example). An impurity (gas or liquid) such as germane is adhered to said exposed surfaces as recited in claim 9. It is noted that germane is a germanium containing fluid. Also, germanium is an impurity that is claimed in claim 10, and therefore the germane fluid of Tom is inherently "an impurity containing fluid adhered to said exposed surfaces" as recited in claim 9.

Regarding the newly added limitation of "a substrate arranged within the deposition chamber, the substrate comprising an impurity incorporated in a thin film formed in the deposition chamber", it is noted that Tom teaches (see col. 7, line 66 to col. 8, line 53) the use of a substrate arranged within the deposition chamber comprising a thin film of a chemisorbent material, wherein the thin film of chemisorbent material has an affinity for contaminants (e.g. decomposition products), wherein the contaminants are incorporated in the thin film in the deposition chamber. It is noted that the dictionary definition of "contaminant" is "something that contaminates", while "contaminate" is defined as "to make impure by admixture" (see the attached dictionary definitions). Therefore, the contaminant that is incorporated in Tom's thin film of chemisorbent material is an impurity.

Regarding the newly added limitation of "the impurity cell is not coupled to a heat source", Tom teaches (col. 7, lines 5-10) that his impurity cell can be used without being coupled to a heat source.

Claims 9-12, 16 and 33-42 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Wang (6,453,924). In the

paragraph bridging cols. 2 and 3, Wang incorporates the disclosure of Tom (5,704,965) and other related references. Therefore, all of the disclosure of Tom is included in Wang. Wang discloses an apparatus for supplying a dopant or impurity species (see col. 9, lines 33-41 of Wang) into a semiconductor thin film on a substrate. In the Fig. of Wang, the clean room represented by wall 22 is a chamber in which semiconductor processes such as deposition are performed, and therefore the clean room can properly be described as a low pressure deposition chamber. Impurity cells are located within the deposition chamber delineated by wall 22. The cells comprise the substantially solid sorbent material having exposed surfaces located entirely within the deposition chamber, and an impurity-containing fluid (such as germanium containing germane) adhered on said exposed surfaces. Also, regarding the limitations of claims 39-42, each impurity cell of Wang is contained within an enclosure in the form of local supply vessel 50 or local supply vessel 96, with an impurity source in the form of main liquid supply vessel 12 coupled to the enclosure (50 or 96) by a connector 18 which includes a valve.

Applicants have argued that Tom fails to disclose a substrate and an impurity cell within the same deposition chamber. As discussed above in the statement of the rejection based on Tom, the fluid storage dispensing vessel of Tom can correctly be considered to be "a low pressure deposition chamber" because it is filled by a deposition process. Furthermore, the fluid storage dispensing vessel/ deposition chamber of tom includes within it an impurity cell as claimed by applicants, and a

substrate comprising an impurity incorporated in a thin film as also claimed by applicants.

Applicants have argued that Wang fails to disclose a substrate and an impurity cell within the same deposition chamber. As discussed above in the statement of the rejection based on Wang, the clean room of Wang's disclosure is a low pressure deposition chamber to the extent that applicants' claims require a low pressure deposition chamber, and the substrate and the impurity cell are in the same low pressure deposition chamber. The dictionary definition of "chamber" is "room" (see the attached dictionary definition). Therefore, the clean room of Wang is a deposition chamber.

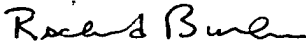
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Bueker whose telephone number is (571) 272-1431. The examiner can normally be reached on 9 AM - 5:30 PM, Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on (571) 272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Richard Bueker
Primary Examiner
Art Unit 1792